B4100528 / 03
November2005

MFCD 1219 - MFCD 1219 TS



Installation & User Manual

SAFETY INSTRUCTIONS

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK)
NO USER-SERVICEABLE PARTS INSIDE
REFER TO QUALIFIED SERVICE PERSONNEL

• Read the safety and operating instructions before operating the apparatus.
• Retain safety and operating instructions for future reference.
• Adhere to all warnings on the apparatus and in the operating instructions manual.
• Follow all instructions for operation and use.

•This apparatus conforms to: UL60950, cUL60950, IEC60950, CE

• FCC notice
This equipment has been tested and found to comply with the limits of a class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

• This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Power connection

• **Warning:** This apparatus must be earthed!
• Power requirements: connect the apparatus to an AC voltage as indicated at its back. Using a lower voltage, the apparatus will not be able to operate. Using a higher voltage may damage the apparatus.
If you are not sure of the type of power supplied, consult the power company.
• Do not overload wall outlets and extension cords as this may result in fire or electric shock.
• Mains lead protection (U.S.: Power cord): Supply cords should be routed so that they are not likely to be walked upon or pinched by items placed upon or against them, paying particular attention to cords at plugs and receptacles.

• Adapter manufacturer: Linearity Electronics Co. Ltd., Model: LAD6019AB5, complies with UL Certified Class 2 Power adapter or UL Certified ITE Power adapter with LPS, and Suitable ratings.

• Power Supply Cord - Listed, Detachable, maximum 4.5m (14.76 ft.) long; rated minimum 125 V, 2.5 A, Type SPT-1 flexible cord; one end terminates in parallel blade (NEMA 5-20P) grounding-type attachment plug, other end in appliance coupler.

Water and moisture

• Never expose the apparatus to rain or moisture.
• Never use the apparatus near water - e.g. near a bathtub, washbasin, swimming pool, kitchen sink, laundry tub or in a wet basement.

Ventilation

• Do not cover or block the ventilation openings in the cover of the set. When installing the apparatus in a cupboard or another closed location, heed the necessary space between the set and the sides of the cupboard.

Installation

• Place the apparatus on a flat, solid and stable surface that can bear the weight of at least 3 monitors. If you use an unstable cart or stand, the set may fall, causing serious injury to a child or adult, and serious damage to the equipment.

CONTENTS

1. OVERVIEW

1.1 Introduction

The MFCD 1219 (TS), BARCO's full color 19" LCD display, guarantees perfect image quality in medical imaging applications.

The display combines a TFT (thin film transistor) liquid crystal display panel structure and a built-in backlight with inverter for a better picture quality. It is designed to meet users' needs for performance, consistency, and outstanding image quality through a streamlined development process in which wall-mount functionality provides a variety of capability.

The image on the display can be adjusted by means of the extended on-screen menu system (OSD).

The internal memory can contain settings for 24 different types of video signals (with different timings). 22 are factory-preset, 2 are user-definable.

Multi-scan capabilities

The display accepts the most common display standards. However, it is limited to the following specifications:

Analog video:

The horizontal frequency must be between 31 and 91 kHz, the vertical frequency between 56 and 85 Hz.

Digital video:

The horizontal frequency must be between 31.47 and 64 kHz, the vertical frequency between 60 and 70 Hz.

The optimum and recommended resolution is **1280 x 1024 / 60 Hz**.

Power Saving

The monitor comes with a power saving feature; therefore, you may put the monitor into a power saving state when it is not in use. This feature complies with both EPA's Energy Star requirements and European NUTEK/TCO's power management guidelines. It conforms to Video Electronics Standard Association (VESA) approved DPMS power-down signaling method. This monitor automatically cuts down power consumption of monitor set when not detecting Hsync or Vsync signals. This feature is compliant with VESA DPMS.

Touch panel

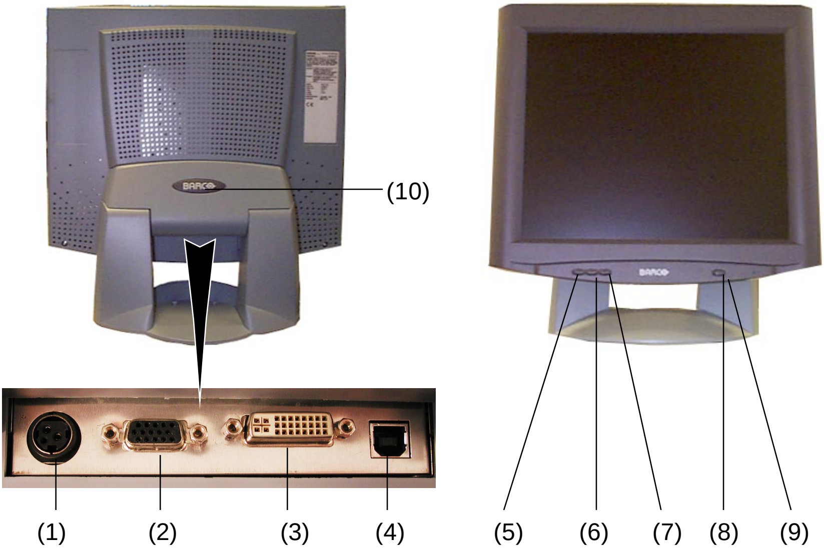
The MFCD 1219 TS is equipped with a touch panel. Instructions on how to install and use the touch panel driver and controls can be found in the "TouchKit, Barco TouchScreen controller installation and user manual" on the supplied CD-ROM.

1.2 Package contents

The package should include the following items, please check. If some of the items are missing, please contact the reseller you have purchased the unit from.

- The display with foot
- 12V DC adapter
- European power cord
- American power cord
- UK power cord
- Video cables: VGA cable and DVI-D cable
- Mounting plate with 4 screws
- This user manual
- Calibration software CD-ROM
- USB cable for touch panel

1.3 Controls and connectors



(1) 12V DC power input

(2) Analog video input

(3) DVI input (DVI-D supported only)

(4) USB port for touch panel connection to PC (MFCD 1219 TS only)

(5) Menu key

(6) <-> Key

(7) <+> Key

(8) Power LED
The LED is off when the display is off.
The LED is green when the display is on.
The LED is orange when the display is in power-saving mode (stand-by)

(9) Power key

(10) Push-button to release the panel from the foot

2. INSTALLATION

2.1 Precautions

- Keep your original packaging. It is designed for this display and is the ideal protection during transport.
- Avoid reflections in the flat panel to reduce eye strain.
- Place the display on a strong and stable table or desk.
- Keep the display away from heat sources and provide enough ventilation in case it is built in a rack or console. Do not put in direct sunlight.
- Make sure computer and display are switched off before connecting the signals.
- Touch panel precautions: Operate with a stylus (tip R0.8 or over, maximum hardness 3H), or with a finger without applying excessive load. Sharp edged or hard articles are prohibited. The gathering of dew in the panel may occur with abrupt temperature or humidity changes. A stable environment condition is recommended. Keep the surface clean. No adhesives should be applied. Avoid high voltage and static charge.

2.2 Wall mounting

You can mount the panel to the wall instead of to the foot, by means of the supplied mounting plate. If you do not need to mount the panel to the wall, please skip this item.

Step 1: Remove the panel from the foot

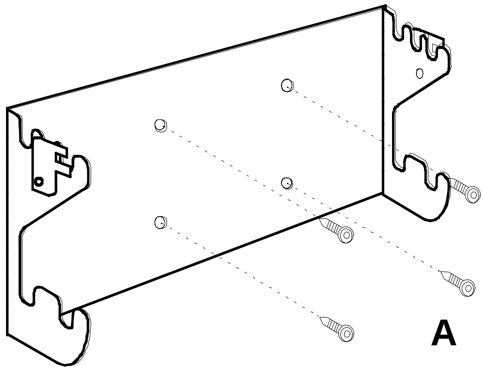
1 Position one hand under the panel at the front side. Position the other hand at the rear, under the push-button with BARCO logo (9).

2 Firmly press down the push-button (9) with one hand while carefully lifting the panel up with the other hand.

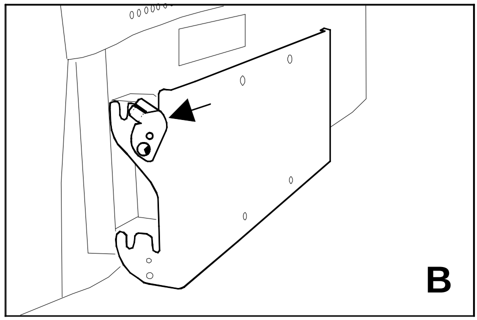
3 Remove the panel from the foot.

Step 2: Fix the mounting plate to the wall

1 Screw the mounting plate to the wall with the 4 supplied screws (A).

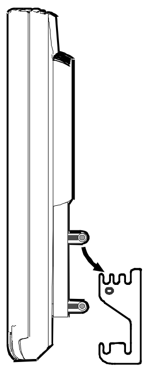


2 Slide back the locks at both sides of the mounting plate (B). In that way, you can secure the panel to the mounting plate after placing the panel.



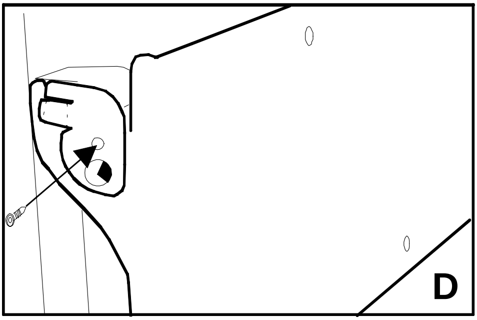
Step 3: Place the panel on the mounting plate

1 Place the panel on the mounting plate (C). If you want to secure the panel to the mounting plate, place the panel in the frontmost notches.
Please make sure that the four shafts are securely placed in the notches of the mounting plate.



C

2 To secure the panel, slide forward the locks on both sides of the mounting plate. Lock the panel with one screw at both sides (D).

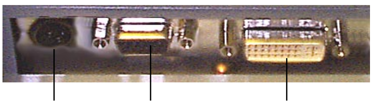


2.3 Connecting the signals

To connect the video & sync signals:

1 Connect one end of the appropriate video cable to the corresponding video input of the monitor.
Analog video: Connect to input (2)
DVI: Connect to input (3)

2 Connect the other end of the video cable to the video output of your video source.
Analog video: Computer graphics board with analog video output
DVI: Computer graphics board with digital video output



To connect the power:

1 Connect one end of the proper power cable to the AC input of the 12V DC adapter.

2 Connect the 12V supply of the 12V DC adapter to the DC input (1) of the monitor.

3 Connect the other end of the power cord to a grounded power outlet.

2.4 Starting up



Proceed as follows:

1 Switch on the computer.

2 Switch on the display by pushing the Power key (8).

3 If necessary, select a suitable resolution in the computer operating system. Please refer to Appendix A, "Possible resolutions" in the back of this manual.

Note: The recommended resolution for best image quality is **1280x1024 at 60 Hz**.

The microcontroller in the display checks if the connected video signal has been adjusted before, and if these adjustments have been stored in the memory. There are 2 possibilities:

a) The video signal has been adjusted and stored in the memory.

In this case, the display switches to this memory location (the so-called mode) and the image will need no further adjustments.

b) The video signal has not been adjusted and stored yet.

In this case, the display will auto-size the picture and store the settings in one of the user modes.

2.5 Install the software

NioWatch software:

Insert the CD-ROM in the CD-ROM drive. The CD-ROM starts automatically. Please follow the instructions on the screen.

The CD-ROM contains user instructions about the usage of the NioWatch.

Touch panel software:

Please refer to the TouchKit installation & user manual on CD-ROM.

3. ON-SCREEN DISPLAY (OSD) MENUS

3.1 How to use the OSD



Proceed as follows:

1 Press the Menu key (4) on the front to display the OSD main menu.

Note:

It may be possible that the OSD menu does not appear. If this is the case, the front Controls are locked. To unlock them, please follow the procedure described in § 3.2 below.

2 Press the <+> key (6) or <-> key (5) to scroll to the desired menu item.

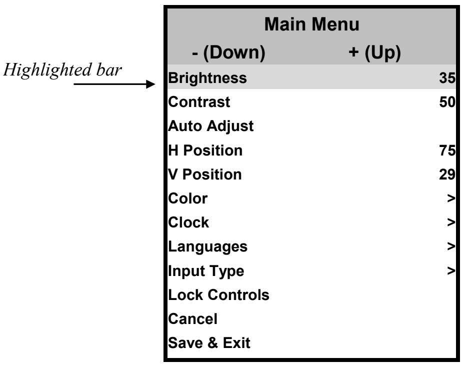
3 Press the Menu key (4) to activate the selected function or to enter the selected secondary menu.

4 If you have activated a function:

a) Press the <+> key (6) or <-> key (5) to change the value.

b) Press the Menu key (4) to enter the new value and return to the menu.

5 To exit the OSD while saving the changes, select **Save & Exit**.
To exit the OSD *without* saving the changes, select **Cancel**.



Note: The OSD disappears automatically after an inactivity period of 30 seconds.

The color of the highlight bar indicates the status of the mode.

RED indicates the function is selected and ready to be adjusted.

Blinking RED indicates OSD is in parameter adjusting mode.

3.2 Description of the menu items

Main menu

Function	Description
Brightness	To adjust the overall image and background brightness level.
Contrast	To adjust the image brightness in relation to the background (the background is unchanged).
Auto Adjust *	To automatically set the H Position, V Position and Clock.
Horizontal Position	To move the screen horizontally left or right.
Vertical Position	To move the screen vertically upward or downward.
Color	To adjust parameters for the screen colors of Red, Green and Blue.
Clock	To adjust the function only when characteristics are blurred.
Languages	To select English, French, Italian, German or Spanish for OSD language.
Input Type	To select Analog (A1) or DVI-Digital (D) input source.
Lock Controls **	When locked, the OSD menu will not appear when pressing the Menu key.
Cancel	To restore the previous setting.
Save & Exit	To save the adjustments and quit the OSD menu.

*Auto Adjust function will be automatically executed whenever the system is switched to a new mode. When the system is changed to this mode again later on, the system will not repeat the Auto Adjust function. This function is only valid when the mode concerned is selected for the first time.

**To unlock the Controls, proceed as follows:

1 Press the Power key to switch off the display

2 With one hand, press and hold the <+> and the <-> key at the same time.
With the other hand, press the Power key **shortly** to switch the display on again.

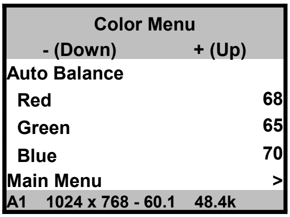
3 Keep holding the <+> and the <-> key for about 3 seconds.

4 At last, release the <+> and the <-> key.
Now, by pressing the Menu key, the OSD menu will appear.

Note:

The bottom line of the OSD shows the input type, current resolution of the monitor and status of vertical sync. If it shows user mode, one of the user modes is selected.

Color Menu



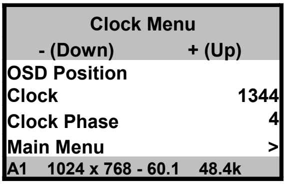
Function	Description
Auto Balance	To automatically adjust the contrast level of RGB. This does not support resolution of Mac 832 x 624 at 75Hz.
R	To adjust the level of color Red.
G	To adjust the level of color Green.
B	To adjust the level of color Blue.
Main Menu	To return to Main Menu.

To perform the Autobalance function, you need to select a proper test pattern before performing the function.

Proceed as follows:

1. You must have installed the Barco NioWatch software.
2. Right-click on the NioWatch systray icon.
3. Select **Test Patterns** from the pop-up menu.
4. Select the **SMPTE** test pattern.
5. Now perform the function **Autobalance** from the MFCD 1219 (TS) control panel.
6. When finished, click on the test pattern to close it.

Clock Menu



Function	Description
OSD Position	To display the OSD to your preferred position.
Clock	To adjust the function only when characteristics are blurred.
Clock Phase	To adjust ADC sampling clock phase.
Main Menu	To return to Main Menu.

4. MAINTENANCE

Panel

Take care not to damage or scratch the panel. Clean with a soft woolen or cotton towel. Use a watery solution or a mild commercial glass cleaning solution.

Cabinet

Do not use chemical cleaning products, benzene, toluene, xylene or other solvents.

Clean with a soft cloth dampened with mild detergent and water. Repeat this with water only and wipe dry with a dry cloth.

Touch panel

(Only for MFCD 1219 TS)

Use a clean and soft clothe with neutral detergent or with ethanol for cleaning.

Do not use any chemical solvent, acidic or alkali solution.

Avoid spilling liquid inside the display. Apply the liquid to the cloth, not to the panel.

APPENDIX A: POSSIBLE RESOLUTIONS

There are 22 preset modes and 2 user modes. The following modes are preset as factory defaults.

Resolution	Pixel Freq. (MHz)	Horizontal Freq. (kHz)	Vertical Freq. (Hz)	Standard	Analog	Digital
640 x 350	25.175	31.47	70	VGA	V	V
640 x 480	25.175	31.47	60	VGA/VESA	V	V
	30.24	35.00	67	Mac	V	
	31.50	37.90	72	VESA	V	
	31.50	37.50	75	VESA	V	
	36.00	43.30	83	VESA	V	
720 x 400	28.321	31.47	70	VGA	V	V
800 x 600	36.00	35.10	56	VESA	V	
	40.00	37.88	60	VESA	V	V
	50.00	48.10	72	VESA	V	
	49.50	46.88	75	VESA	V	
	56.25	53.70	85	VESA	V	
832 x 624	57.29	49.80	74.6	Mac	V	
1024 x 768	65.00	48.36	60	VESA	V	V
	75.00	56.50	70	VESA	V	
	78.80	60.02	75	VESA/CRUS	V	
	80	60.24	75	Mac	V	
	94.50	68.70	85	VESA	V	
1152 x 864	108	67.50	75	VESA	V	
1280 x 1024	108	63.98	60	VESA	V	V
	135	80	75	VESA	V	
	157.5	91.146	85	VESA	V	

APPENDIX B: TECHNICAL SPECIFICATIONS

Picture panel
19-inch diagonal viewable screen TFT (thin film transistor) active matrix, color liquid crystal display, RGB interface

Touch panel (MFCD 1219 TS only)
Resistive technology
Interface: USB 1.1
Input mode: stylus or finger
Touch active force (stylus ∅ 0.8 mm): <=50g

Resolution
1280 x 1024 (native)

Display area (H x V)
376 x 301 (mm)

Pixel Pitch
0.294 mm (H) x 0.294 mm (V)

Display color
16M

Luminance
280 cd/m^2 (typ.)
MFCD 1219 TS: 230 cd/m^2 (typ.)

Contrast ratio
700:1 (typ.)

Response time
9 ms (typ. avg.)

Viewing angle
Vertical: 176º (typ.)
Horizontal: 176º (typ.)

Input signals
Analog: Hor. 31.47 to 91.2 kHz
Vert. 56 to 85 Hz
Sync types: Separate sync, composite sync, sync on Green
Digital: Hor. 31.47 to 64 kHz
Vert. 60 to 70 Hz

Max. video input bandwidth
157.5 MHz

Signal system
Analog RGB signals, DVI digital

Front panel controls
Menu, - (down / decrease), + (up / increase), Power

Input connectors
15-pin D-sub
(for PC graphic signal input)
3P - Mini – DIN – Power –Connector
(for DC 12V, 6.5A input)
DVI connector (supporting DVI-D only)

Power source
100 ~ 240 VAC

Power consumption
50 W (max.)
Less than 5 W in power-off mode

Power saving
VESA DPMS standard
EPA/Energy Star compliant

PnP compatibility
VESA DDC 2B standards compliant

Safety standards
UL60950, cUL60950, IEC60950, CE, CCC

Dimensions (W x H x D)
450 mm x 461.8 mm x 213.9 mm

Net weight
7.7 kg
MFCD 1219 TS: 8.3 kg

Operating Temperature
0°C to 40°C

Storage Temperature
-20°C to 60°C

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